## **CLAIMS**:

- 1. A white light-emitting OLED device including spaced anode and cathode, and having blue light-emitting and yellow, orange, or red light-emitting layers, the blue light-emitting layer including
- a) a monoanthracene derivative of Formula (I) as a host material

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wherein:

 $R_1$ - $R_8$  are H;

 $R_9$  is not the same as  $R_{10}$ ;

R<sub>9</sub> is a naphthyl group having no fused rings with aliphatic carbon ring members; and

 $R_{10}$  is a biphenyl group having no fused rings with aliphatic carbon ring members; and

provided that R<sub>9</sub> and R<sub>10</sub> are free of amines and sulfur compounds.

- 20 2. The white light-emitting OLED device of claim 1 further including:
  - b) a blue light-emitting dopant, wherein the blue-emitting dopant is from 0.25 to 5% by volume of the host material.
- 25 3. The white light-emitting OLED device of claim 2 wherein the blue light-emitting dopant includes a tertiary aromatic amine.

- 4. The device of claim 1 wherein R<sub>9</sub> is a naphthyl group of two fused rings.
- 5. The device of claim 4 wherein R<sub>9</sub> is an unsubstituted naphthyl group.
  - 6. The device of claim 1 wherein the naphthyl group contains a further fused ring.
- 7. The device of claim 1 wherein the naphthyl group contains two or more further fused rings.
  - 8. The device of claim 1 wherein the naphthyl group is substituted with at least one substituent selected from fluorine, hydroxy, cyano, alkyl, alkoxy, aryloxy, aryl, carboxy, trimethylsilyl, and heterocyclic oxy groups.
    - 9. The device of claim 1 wherein R<sub>9</sub> is a 2-naphthyl group.
- 10. The device of claim 1 wherein  $R_{10}$  is an unsubstituted 20 biphenyl group.
  - 11. The device of claim 1 wherein at least one of the phenyl rings has a ring fused thereto.
- 25 The device of claim 1 wherein the biphenyl is substituted with another phenyl ring without fused rings to form a terphenyl ring system.
  - 13. The device of claim 10 wherein the biphenyl is a 2-biphenyl.

- 14. The device of claim 10 wherein the biphenyl is a 3-biphenyl.
- 15. The device of claim 10 wherein the biphenyl is a 4-biphenyl.
  - 16. The device of claim 12 wherein the rings are unsubstituted.
- 17. The device of claim 1 wherein the biphenyl is substituted with at least one substituent selected from fluorine, hydroxy, cyano, and alkyl, alkoxy, aryloxy, aryl, carboxy, trimethylsilyl, and heterocyclic oxy groups.
  - 18. The device of claim 1 wherein Formula (I) is

- 19. The device of claim 1 including a co-host.
- 20. The device of claim 19 including a polymeric co-host.

- 21. The device of claim 19 including an oxinoid compound.
- 22. A display incorporating the device of claim 1.
- 23. An area lighting system incorporating the device of claim 1.
- 24. The device of claim 2 wherein the blue light-emitting dopant includes
  - i) a compound of the structure

$$(X^{a})_{\stackrel{\longrightarrow}{n-1}} \xrightarrow{A} A \xrightarrow{A^{i}} A \xrightarrow{A^{i}} X^{b}$$

$$Z^{a^{\prime}} Z^{b}$$

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wherein:

A and A' represent independent azine ring systems corresponding to 6-membered aromatic ring systems containing at least one nitrogen;

 $(X^a)_n$  and  $(X^b)_m$  represent one or more independently selected substituents and include acyclic substituents or are joined to form a ring fused to A or A';

m and n are independently 0 to 4;

Z<sup>a</sup> and Z<sup>b</sup> are independently selected substituents;

1, 2, 3, 4, 1', 2', 3', and 4' are independently selected as either carbon or nitrogen atoms; and

provided that X<sup>a</sup>, X<sup>b</sup>, Z<sup>a</sup>, and Z<sup>b</sup>, 1, 2, 3, 4, 1', 2', 3', and 4' are selected to provide blue luminescence;

- ii) a blue-emitting derivative of a distyrylbenzene or a distyrylbiphenyl; or
  - iii) perylene or a derivative of perylene.

25. The device of claim 24 wherein i) includes

26. The device of claim 24 wherein ii) includes

27. The device of claim 24 wherein iii) includes

- 28. The device of claim 1 wherein the yellow, orange, or red light-emitting layer includes:
  - i) a compound of the following structure:

$$A_{13}$$
 $A_{14}$ 
 $A_{15}$ 
 $A_{16}$ 
 $A$ 

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wherein A<sub>1</sub>-A<sub>6</sub> represent one or more substituents on each ring and where each substituent is individually selected from one of the following:

Category 1: hydrogen, or alkyl of from 1 to 24 carbon atoms;

Category 2: aryl or substituted aryl of from 5 to 20 carbon atoms;

Category 3: hydrocarbon containing 4 to 24 carbon atoms, completing a fused aromatic ring or ring system;

Category 4: heteroaryl or substituted heteroaryl of from 5 to 24 carbon atoms such as thiazolyl, furyl, thienyl, pyridyl, quinolinyl or other heterocyclic systems, which are bonded via a single bond, or complete a fused heteroaromatic ring system;

Category 5: alkoxylamino, alkylamino, or arylamino of from 1 to 24 carbon atoms; or

Category 6: fluoro, chloro, bromo or cyano;

ii) a diindenoperylene compound of the following

## 5 structure:

$$X_{16}$$
 $X_{15}$ 
 $X_{14}$ 
 $X_{13}$ 
 $X_{12}$ 
 $X_{11}$ 
 $X_{12}$ 
 $X_{11}$ 
 $X_{12}$ 
 $X_{10}$ 

wherein:

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 $X_1$ - $X_{16}$  are independently selected as hydro or substituents that provide red, yellow, or orange luminescence; or

iii) a compound of the following structure:

wherein:

Y<sub>1</sub>-Y<sub>5</sub> represent one or more groups independently selected from: hydro, alkyl, substituted alkyl, aryl, or substituted aryl;

Y<sub>1</sub>-Y<sub>5</sub> independently include acyclic groups or are joined pairwise to form one or more fused rings; provided that Y3 and Y5 do not together form a fused ring; or

any combination of i), ii), and iii).

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29. The device of claim 28 wherein i) includes

30. The device of claim 28 wherein ii) includes

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31. The device of claim 28 wherein iii) includes

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32. The device of claim 1 including a color filter array including at least three separate filters having bandpass spectra for passing red,

green, and blue light, respectively, in response to white light to produce preselected color outputs.

- The device of claim 32 wherein the bandpass spectrum of
   the red color filter is from 605 nm to 700 nm.
  - 34. The device of claim 32 wherein the bandpass spectrum of the green color filter is from 495 nm to 555 nm.
- 35. The OLED device of claim 32 wherein the bandpass spectrum of the blue color filter is from 435 nm to 480 nm.